



Status of Department of Defense Funded Suicide Research

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20 JUNE 2012

COL Carl A. Castro

**Chair, Joint Program Committee for Military Operational Medicine
(JPC-5)**

**Director, Military Operational Medicine Research Program
(MOMRP)**

Scope of the Problem: Suicide in the Military

- Historically, military suicide rates were **below** civilian rate
- Some initial (still unsupported) hypotheses:
- People at highest risk of death by suicide are not selected for military service?
- Military service itself is a protective factor?
- Absence of standardized data collection on suicides prevented testing of these hypotheses
- Majority of suicide prevention programs and treatments are still not evidence-based
- As military suicide rate surpassed civilian rate, surveillance data and research needed to develop evidence-based interventions were just beginning
- CY2010 Suicide Rates (DoDSER)

Air Force
15.5

Army
21.7

Marine Corps
17.2

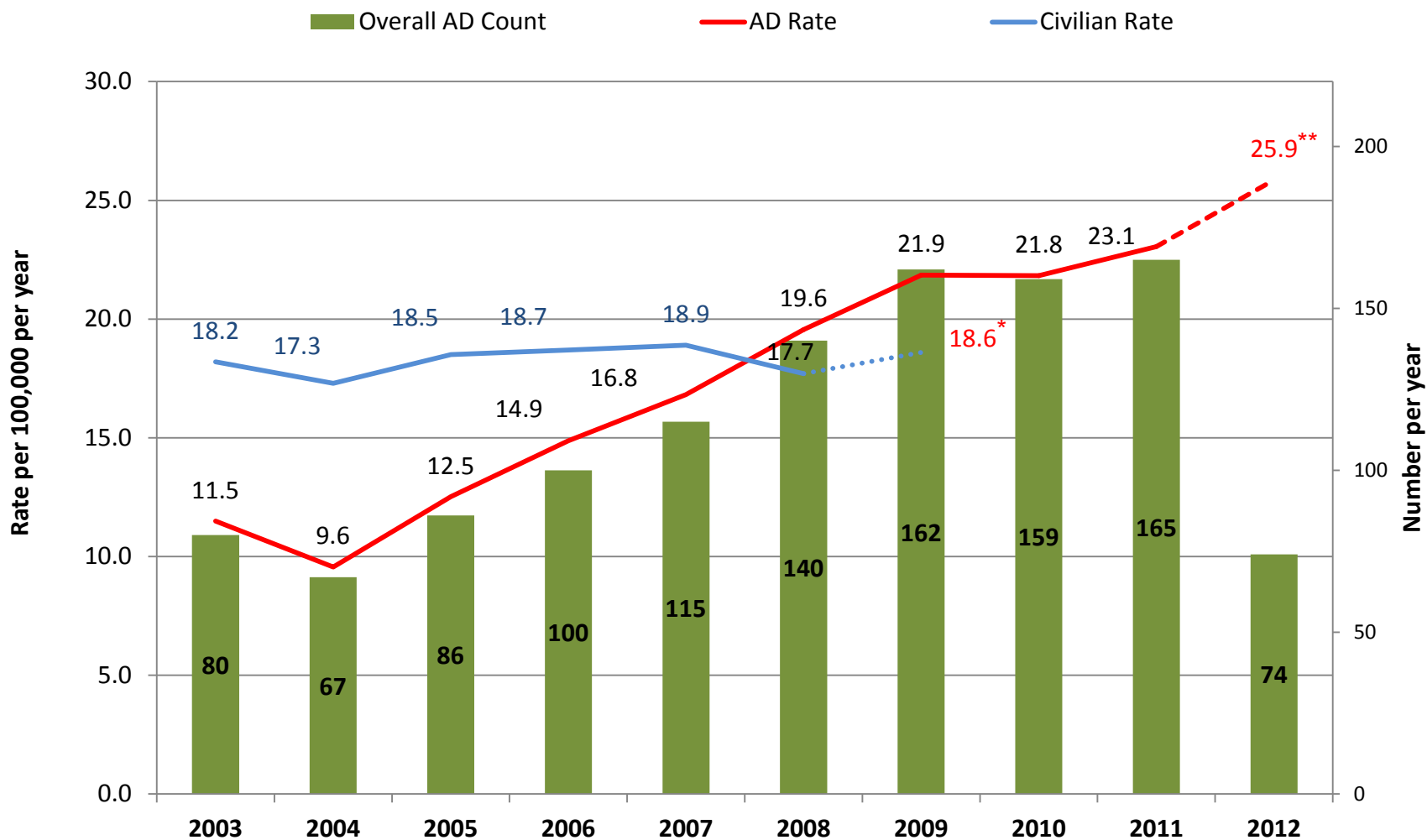
Navy
11.1

Possible Military Suicide Risk Factors

- Recent failure in spousal or intimate relationship, ***often in month prior to suicide***
- Occupational and/or legal problems
- History of behavioral health disorder, substance abuse (misuse of prescription medication), prescribed psychotropic medication, ***accessed outpatient behavioral health services in month prior to suicide***
- ***Communicated suicidal ideation to spouse, friend or other family members***

(DoDSER, 2010)

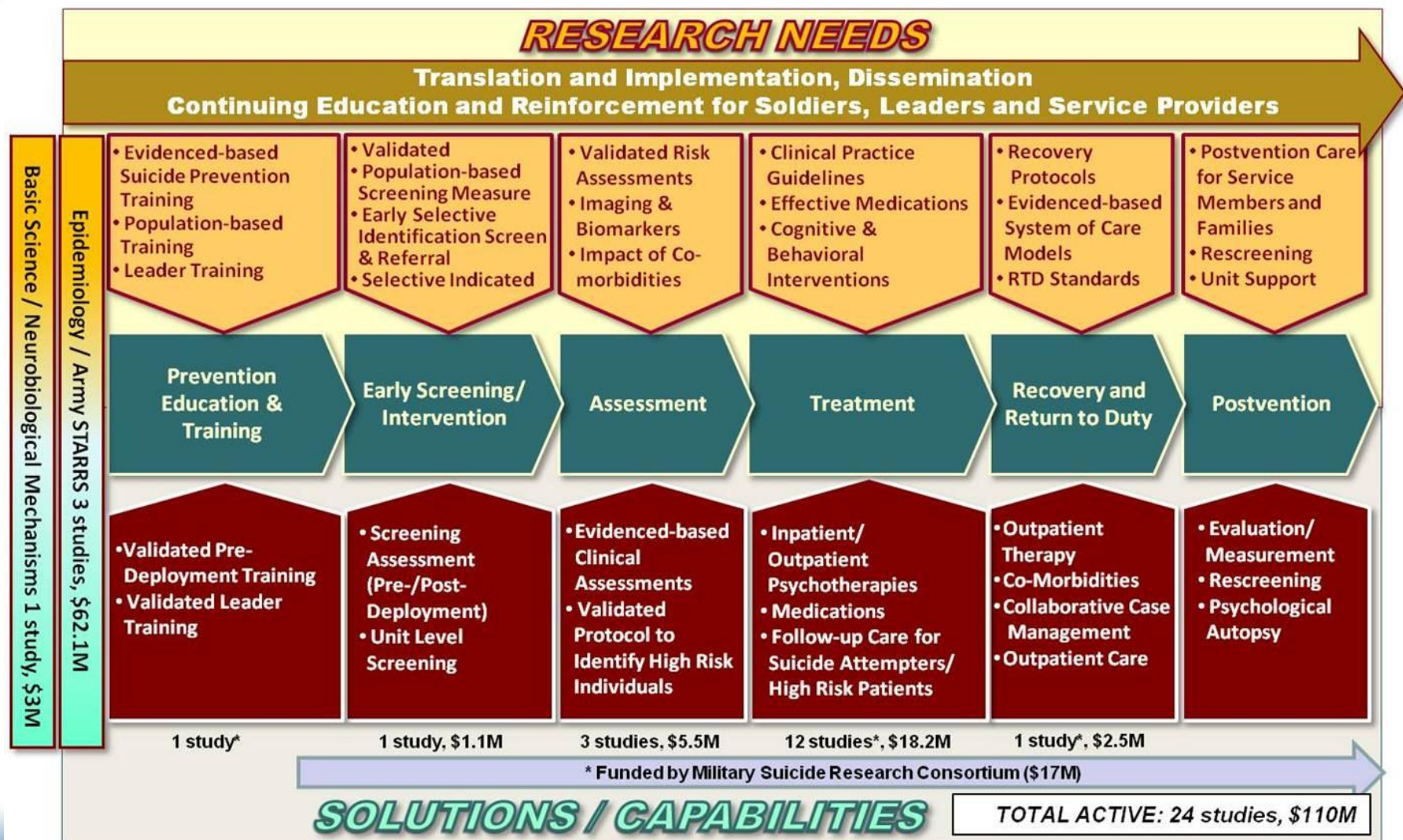
Army Active Duty Suicide Deaths



* = Preliminary Civilian Rate NOT CDC OFFICIAL as of 16 MAR 2011

** = Preliminary Army Rate based on end strength of 715,662 as of 25 MAY 2012

Suicide Continuum of Care Determines Research Approach



Research Investment along Continuum of Care

\$67.5M: Epidemiology/Basic Sciences – Army STARRS, risk factors (Hill), role of deployment on suicidality (Reger), epidemiology of medication abuse and overdose (Cooper), Study to Examine Psychological Processes in Suicidal Ideation and Behavior (STEPPS; O'Connor)

\$5.2M: Prevention, Education & Training – behavioral intervention for insomnia (Bernert), understanding resilience during suicide bereavement (Cerel), caring texts (Comtois), training family members to assist servicemembers in help-seeking (Allen), promoting resilience among family members of high-risk servicemembers (Renshaw), reducing anxiety sensitivity (Schmidt)

\$1.9M: Early Screening & Intervention – development and validation of a theory-based screening process for suicide risk (Vannoy), optimizing screening and risk assessment (Joiner)

Research Investment along Continuum of Care

\$4.2M: Assessment – Use of thermal imaging to assess and optimize level of physiologic arousal during treatment (Familoni), toward a “gold standard” for suicide risk assessment in the military (Gutierrez & Joiner)

\$21.9M: Treatment – Collaborative Assessment and Management of Suicide (Jobes), Window to Hope (Brenner), brief CBT interventions (Bryan, Holloway, Rudd), Virtual Hope Box (Bush), high-dose left prefrontal TMS (George), DBT (Goodman), blister packaging for medication adherence (Gutierrez), safety planning (Holloway), intranasal delivery of biodegradable neuropeptide nanoparticles (Kubek), risk assessment in group therapy (Johnson & Jobes)

\$4.5M: Recovery & Postvention – caring letters intervention (Luxton), development of guidelines and decision aids for evidence-based response to suicidal behavior during deployment (Stanley)

Largest Investments: How Are they Different?

Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS)

- \$62.1M (\$50M Army, \$12.1M NIMH)
- Co-PIs Robert Ursano, MD (USUHS) and Murray Stein, MD, MPH (UCSD)
- 5 major studies
 - Historical Data Study
 - All Army Study
 - New Soldier Study
 - Soldier Health Outcomes Study (A & B)
 - Special Studies
 - Pre/Post-Deployment Study
 - Clinical Calibration Study
- Studies mostly Soldiers, some Marines
- Retrospective and prospective epidemiological studies
- Data informs development of interventions

Military Suicide Research Consortium

- \$17M (funded by Defense Health Program)
- Co-led by Peter Gutierrez, PhD (Denver VA MIRECC) and Thomas Joiner, PhD (FSU)
- 7 currently funded studies, 2 additional studies pending
- Studies may involve any service and/or veterans
- Focus on interventions (prevention, screening, assessment, treatment, recovery and postvention)

DoD Suicide Research: Challenges and Successes

- Omega-3 and Tau protein—how relevant are they?
- Importance of establishing and maintaining relationship with command of possible study site
- Multi-site studies needed, complicates an already lengthy IRB approval process
- Army STARRS and MSRC

DoD Suicide Research: The Way Ahead

- Theory-driven, evidence-based treatment studies (in/out patient)
- Research to examine the effects of brief interventions to reduce suicide behavior, problem drinking, and other outcomes (e.g., accidents, homicide, intimate partner violence, etc.)
- Basic science to validate underlying psychological and biopsychological theories of suicide
- Combined psychotherapy and pharmacotherapy treatment studies
- Validate suicide prevention training (universal, at-risk populations)
- Validate objective suicide screening measure(s) for field and clinic use

DoD Research Funding

https://www.usamraa.army.mil/pages/baa_forms/index.cfm

<http://www.grants.gov> (Search by CFDA number 12.420)

<https://momrp.amedd.army.mil/>

<http://cdmrp.army.mil/>

http://www.tatrc.org/about_funding.html

http://www.darpa.mil/Opportunities/Solicitations/DARPA_Solicitations.aspx

<http://www.acq.osd.mil/osbp/sbir/>

<https://www.armysbir.army.mil/>

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MILITARY SUICIDE RESEARCH CONSORTIUM

The views expressed are those of the authors and do not represent the Department of Defense, Department of Veterans Affairs, or the US Government

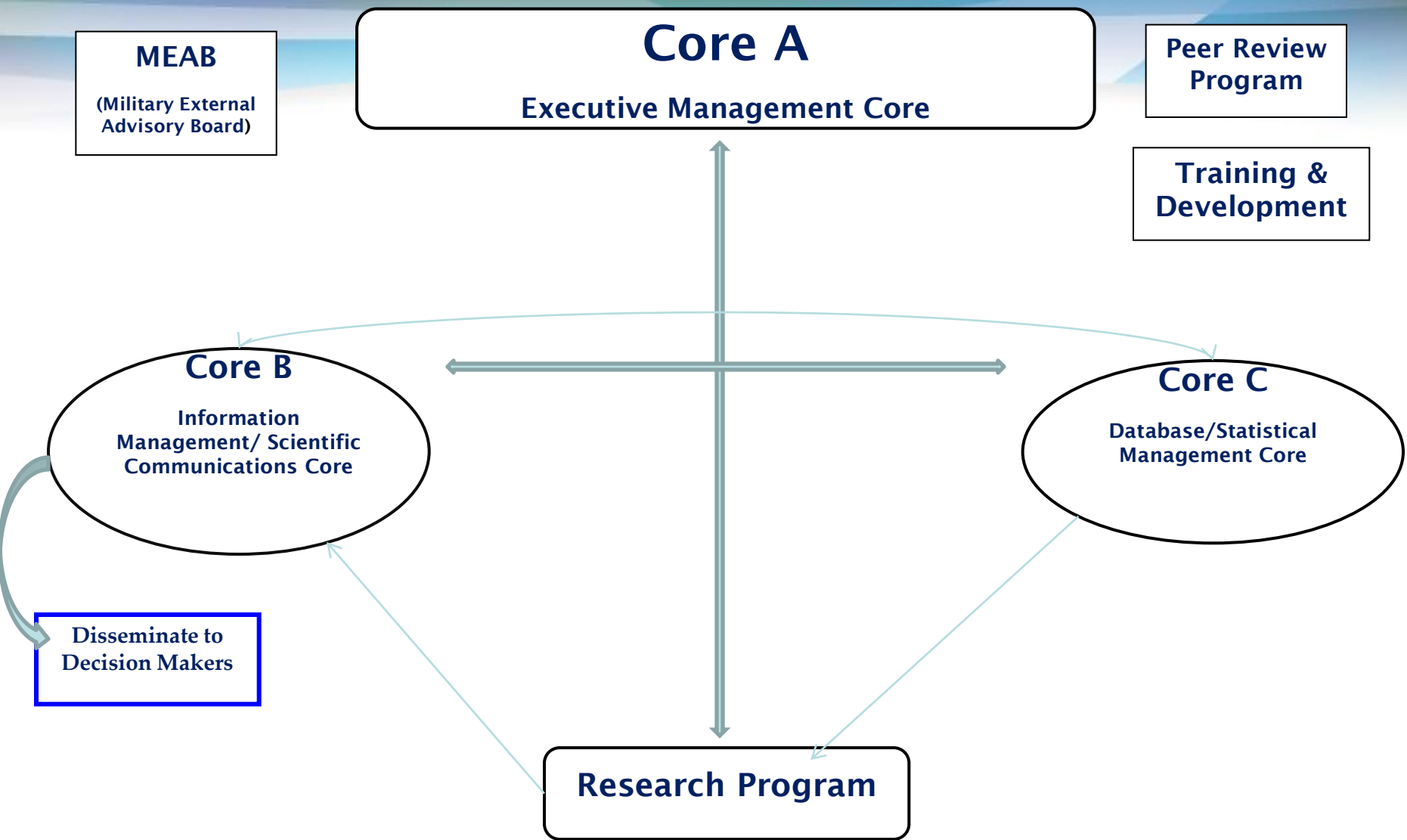
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**VISN 19 MIRECC, University of Colorado
School of Medicine**

**Thomas Joiner, Ph.D., Florida State University
Co-Directors**

MSRC Background/Rationale

- **Produce new scientific knowledge about suicidal behavior in the military**
- **Use high-quality research methods and analyses to address problems in policy and practice**
- **Disseminate knowledge, information, and findings**
- **Train future leaders in military suicide research**



Research Program Areas

- **Treatment and Case Management**
- **Screening and Risk Assessment**
- **Basic Research (includes neurobiology and genetics)**
- **Prevention**
- **Postvention**

MSRC FUNDED RESEARCH

Military Continuity Project

Texting a brief intervention to prevent suicidal ideation and behavior

Katherine Anne Comtois, PhD MPH

**University of Washington Department of
Psychiatry**

A Behavioral Sleep Intervention for Suicidal Behaviors in Military Veterans: A Randomized Controlled Study

Rebecca Bernert, Ph.D.
Department of Psychiatry
and Behavioral Sciences



Stanford University Medical Center



Usability and Utility of a Virtual Hope Box (VHB) for Reducing Suicidal Ideation

Nigel Bush, Ph.D.

**National Center for Telehealth & Technology
University of Washington**

Brief Intervention for Short- Term Suicide Risk Reduction in Military Populations

**Craig J. Bryan, PsyD
University of Utah
National Center for Veterans Studies**

Development and Evaluation of a Brief, Suicide Prevention Intervention Reducing Anxiety Sensitivity

Norman B. Schmidt, Ph.D.

Florida State University

Window to Hope

Lisa A. Brenner, Ph.D., ABPP

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Suicide Bereavement in Military and their Families

Julie Cerel, Ph.D.

University of Kentucky

COLABORATIVE ASSESSMENT AND MANAGEMENT OF SUICIDALITY SUICIDE STATUS FORM

Lori Johnson, Ph.D.

Louisville VA Medical Center

Toward a Gold Standard Suicide Assessment

**Peter M. Gutierrez, Ph.D.
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**Thomas Joiner, Ph.D.
Florida State University**

MSRC STUDIES UNDER DEVELOPMENT

The Psychophysiology of Suicidal States: Temperamental and Physiologic Suicide Risk Assessment Measures and Their Relation to Self-Reported Ideation and Subsequent Behavior

**Michael H. Allen, M. D., University of Colorado School of Medicine,
VISN 19 MIRECC**

**Theresa D. Hernández, Ph.D., University of Colorado, VISN 19
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CONSORTIUM WEBSITE

WWW.MSRC.FSU.EDU

The Operation Worth Living (OWL) Project:

A Randomized Trial of the Collaborative Assessment and Management of Suicidality vs. Enhanced Care as Usual for Suicidal Soldiers

David A. Jobes, Ph.D., ABPP

Principal Investigator

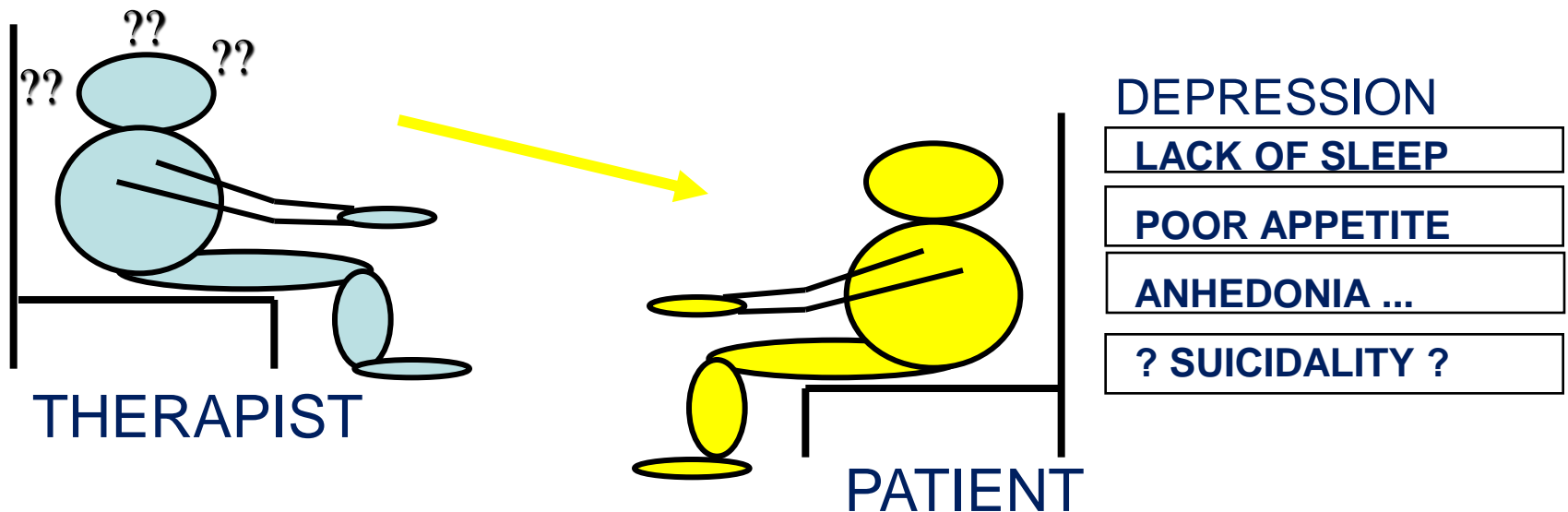
Professor of Psychology

Associate Director of Clinical Training

The Catholic University of America

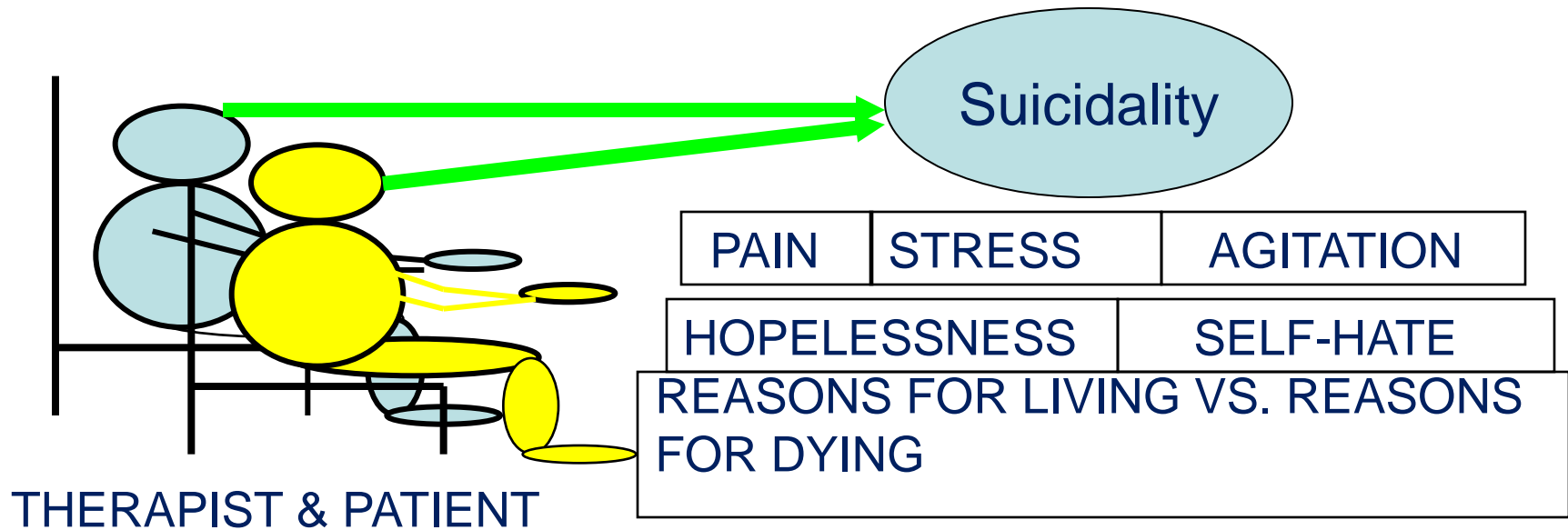
STUDY BACKGROUND/RATIONALE:

CRITIQUE OF THE REDUCTIONISTIC MODEL (Suicide = Symptom of Psychopathology)



Traditional treatment = inpatient hospitalization, treating the psychiatric disorder, and using no suicide contracts...

CAMS targets ***Suicide*** as the primary focus of assessment and problem-focused intervention...



The Suicide Status Form (SSF) is used to guide assessment and treatment...

Evolving Empirical Support for CAMS

<u>Authors</u>	<u>Sample/Setting</u>	<u>n =</u>	<u>Significant Results</u>
Jobes et al., 1997	College Students Univ. Counseling Ctr.	106	Pre/Post Distress Pre/Post Core SSF
Jobes et al., 2005	Air Force Personnel Outpatient Clinic	56	Between Group Suicide Ideation, ED/PC Appts.
Arkov et al., 2008	Danish Outpatients CMH Clinic	27	Pre/Post Core SSF Qualitative findings
Jobes et al., 2009	College Students Univ. Counseling Ctr.	55	Linear reductions Distress/Ideation
Nielsen et al., 2011	Danish Outpatients CMH Clinic	42	Pre/Post Core SSF
Ellis et al., 2012	Psychiatric Inpatients	20	Pre/Post Core SSF Ideation, Hopelessness
Comtois et al., 2011	Adult Outpatients (RCT)	32	Ideation/Hope/Distress

Research AIMS/Hypotheses

Aim 1: To develop a methodology for identifying, screening, referring to treatment, and tracking distressed Soldiers who admit to being suicidal

Aim 2: Evaluate whether the organizing of behavioral health care for suicidal Soldiers by CAMS results in a clinically and statistically significant reduction in suicidal behavior and improvement in mental health (e.g., resiliency, hope, reasons for living) as compared to Enhanced Care as Usual (E-CAU).

Hypothesis 1: *At post-treatment and at 3, 6, and 12 months follow-up, CAMS will be more effective in reducing suicidal behavior (suicidal ideation and suicide attempts) than E-CAU.*

Hypothesis 2: *At post-treatment and at 3, 6, and 12 months follow-up, CAMS will be more effective in improving mental health (e.g., resiliency, functioning, distress, and psychiatric and health-related symptoms) than E-CAU.*

Hypothesis 3: *CAMS provided adherently will be more effective than CAMS at low adherence in reducing suicidal ideation and behavior and improving Soldiers mental health.*

Hypothesis 3a (exploratory): *At post-treatment and 3, 6, and 12 months follow-up, CAMS will be more effective in reducing hospitalizations to prevent suicide, emergency department, and medical visits than E-CAU.*

Design and Methodology

Consenting Suicidal Soldiers (n=150)

```
graph TD; A[Consenting Suicidal Soldiers (n=150)] --> B[Control Group  
E-CAU  
3 months of  
outpatient care (n=75)]; A --> C[Experimental Group  
CAMS  
3 months of  
outpatient care (n=75)];
```

**Control Group
E-CAU
3 months of
outpatient care (n=75)**

**Experimental Group
CAMS
3 months of
outpatient care (n=75)**

Dependent Variables: Suicidal Ideation/Attempts, Symptom Distress, Resiliency, Primary Care visits, Emergency Department Visits, and Hospitalizations.

Measures: SSI, OQ-45, SHBQ, SASIC, CDRISC, PCL-M, SF-36, NFI, THI (at 1, 3, 6, 12 months)

Current and Anticipated Challenges

- Delayed start due to IRB process
- Multisite management issues
- IRB management and modifications
- Study transitions and “growing pains”
- Demands on clinic and space issues
- “Store and Forward” adherence/fidelity
- Maintaining command support
- Clinic moving in September 2012
- Staff turn over and additional training

Study Progress

- IRB approval from four different institutions (11 months).
- New CAMS Manual; revised SSF and CAMS Rating Scale.
- Hired Project Coordinator; will hire “back-fill” clinicians.
- Have consented n=4 CAMS and n=4 E-TAU clinicians.
- Experimental arm training conducted 30 April to 2 May.
- Pilot phase of adherence consultation/training has begun.
- We estimate that study patients will be recruited and enrolled in late summer/early fall.

Dissemination/Transition Plan

- We hope to obtain definitive data from a well-powered RCT about the effectiveness of CAMS (note: a well-powered Danish study of CAMS is now underway).
- We will have conducted the study in a real world Army MTF with implications for exportation to other MTF's.
- We will obtain new information about the intervention and CAMS training; we are interested in developing an electronic version of the SSF.
- We ultimately aim to develop a flexible (importable) intervention that will help save Soldiers lives returning them to full duty status with better coping skills and a sense of purpose and meaning—a life worth living.

DoD Funded Inpatient Psychotherapy Randomized Controlled Trials for the Prevention of Suicide

Marjan G. Holloway, Ph.D.

**Associate Professor, Clinical & Medical Psychology, Psychiatry
Uniformed Services University of the Health Sciences**

Presentation Outline

Psychiatric Diagnoses

- Leading Cause of Military Hospitalizations

Limited Scientific Evidence for Inpatient Care

Post Admission Cognitive Therapy (PACT)

Brief Summary

Psychiatric Diagnoses

Leading Cause of Military Hospitalizations

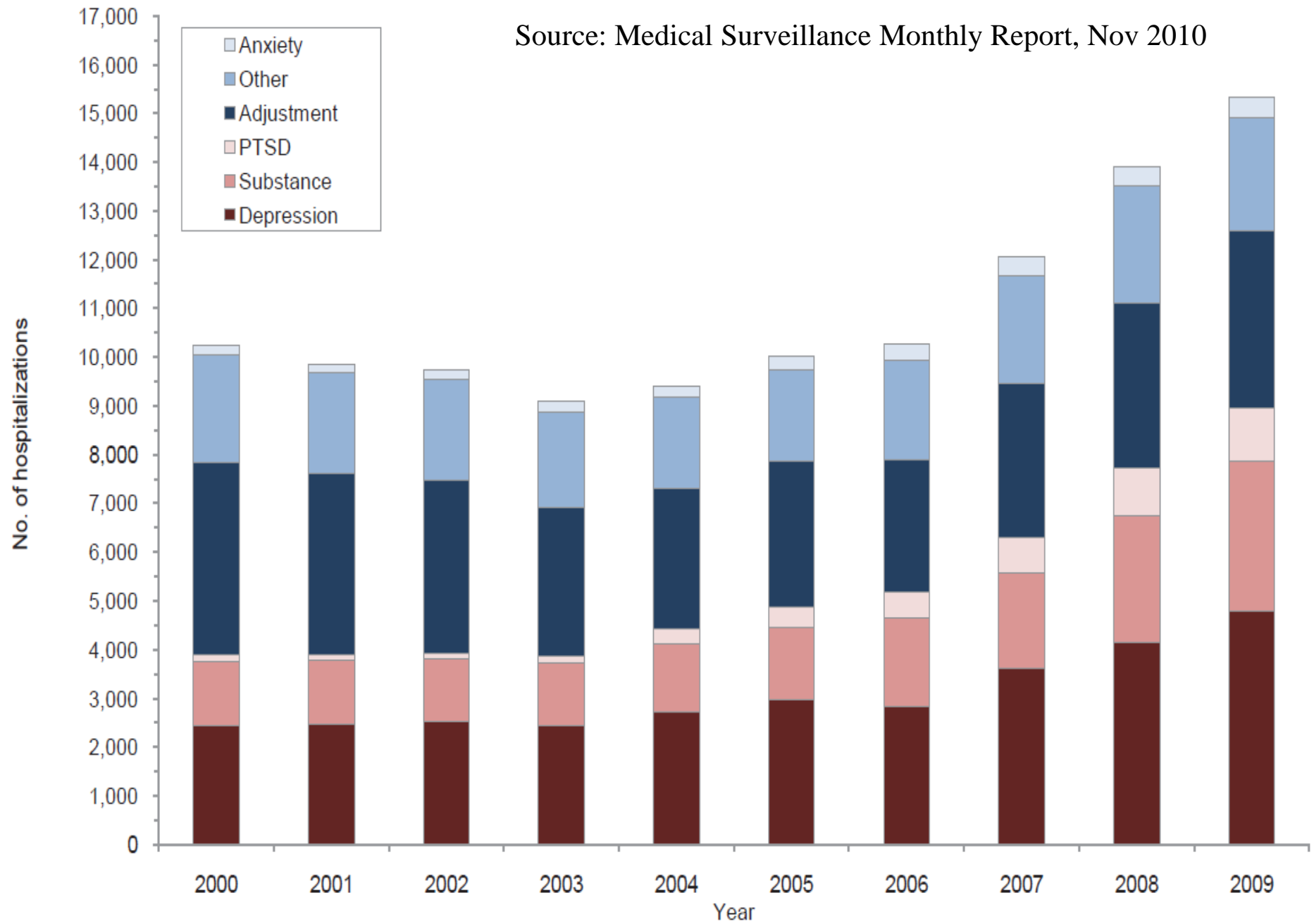
Reasons for Hospitalizations

Table 1. Hospitalizations, ICD-9 diagnostic categories, active component, U.S. Armed Forces, 2005, 2007, and 2009

Major diagnostic category (ICD-9-CM)	2005			2007			2009		
	No.	Rate ^a	Rank	No.	Rate ^a	Rank	No.	Rate ^a	Rank
➔ Mental disorders (290 - 319)	11,335	8.01	(3)	13,703	9.78	(2)	17,538	12.13	(1) ←
Pregnancy and childbirth (630 - 679, relevant V codes) ^b	18,465	13.04 (89.78)	(1)	18,201	12.99 (90.80)	(1)	17,354	12.01 (84.46)	(2)
Injury and poisoning (800 - 999)	12,358	8.73	(2)	12,531	8.95	(3)	11,156	7.72	(3)
Digestive system (520 - 579)	7,332	5.18	(4)	7,373	5.26	(5)	7,676	5.31	(4)
Musculoskeletal system (710 - 739)	7,322	5.17	(5)	7,534	5.38	(4)	7,516	5.20	(5)

Source: Medical Surveillance Monthly Report, April 2010

Figure 1. Mental disorder-related hospitalizations, by diagnostic category, active component, U.S. Armed Forces, 2000-2009



MENTAL HEALTHCARE HISTORY & SUICIDE

U.S. ARMY

Psychological Risk Factors Associated With Suicides of Army Soldiers

<i>Psychological Risk Factor</i>	<i>2001–2009</i>		<i>Army</i>		<i>Mortality</i>	<i>Relative Risk</i>	<i>95% CI</i>
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>Rate Per 100,000</i>		
Inpatient care for MH	142	16.2	56,483	1.3	251.4	19.82	16.43–23.91
➤ Outpatient care for MH	400	45.8	678,511	15.5	59.0	4.65	4.17–5.31

Specifically, the relative risk rate for soldiers with a history of inpatient care for any MH diagnosis was 19.82% higher than for soldiers with no history of MH diagnosis, $\chi^2(1, N = 3,754,768) = 1933.64, p < .001$ (Black et al., 2011, p.441).

Limited Scientific Evidence

Inpatient Care

Inpatient Psychotherapy RCTs

Study 1 (Liberman et al., 1981)

- 24 Patients Randomized, 2 Yr Follow-up
Behavior Therapy (n = 12); Insight Oriented Therapy (n = 12)
- 4 Daily Hours of Therapy over 8 Days
- Outcomes: Depression, Suicide Ideation, & Attempts
- BT > IOT at 9 Months

Study 2 (Patsiokas, 1985)

- 15 Patients Randomized, No Follow-up
Problem Solving (n = 5); Cognitive Restructuring (n = 5);
Non-Directive Control (n = 5)
- 10 Individual Sessions over 3 Weeks
- Outcomes: Hopelessness, Suicide Ideation, & Intent
- PS > CR = Control

Meta-Analysis of Cognitive-Behavioral Interventions to Reduce Suicide Behavior

Terrier, Taylor, & Gooding, 2008

- 28 Studies
- CBT (includes DBT) versus Control
- Used Suicide Behavior as Outcome

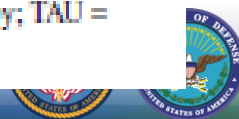
Table 2
Effect Size (Hedge's *g*), Confidence Intervals, and *z* Scores Overall and for Six Subgroup Analyses

Adults Significant
showed effects when
compared to
treatment as usual or active
effects

		Effect Size and 95% Confidence Interval					Test of Null (Two-Tailed)	
		Data Points	Point Estimate	SE	Variance	Lower limit	Upper limit	<i>z</i> <i>p</i>
All studies		25	-0.591	0.112	0.013	-0.811	-0.371	-5.265 .000
Age group	Adults	7	-0.260	0.192	0.037	-0.635	0.116	-1.355 .175
	Adolescents	18	-0.775	0.141	0.020	-1.051	-0.498	-5.497 .000
Comparison group	Placebo, WLC, or nothing	5	-0.808	0.239	0.057	-1.276	-0.341	-3.389 .001
	TAU	14	-0.594	0.166	0.028	-0.920	-0.269	-3.574 .000
	Therapy	6	-0.412	0.254	0.065	-0.910	0.087	-1.619 .105
Study focus	Direct	21	-0.712	0.130	0.017	-0.967	-0.457	-5.469 .000
	Indirect	4	-0.228	0.228	0.052	-0.674	0.219	-1.000 .318
Outcome measure	Hopelessness	2	-0.530	0.330	0.109	-1.177	0.116	-1.608 .108
	Satisfaction with life scale	1	-2.585	0.561	0.315	-3.685	-1.484	-4.604 .000
	Suicide ideation	9	-0.390	0.155	0.024	-0.693	-0.087	-2.522 .012
	Suicide, attempt, plan, potential, problem	13	-0.574	0.145	0.021	-0.858	-0.290	-3.957 .000
Therapy type	CBT	18	-0.562	0.132	0.018	-0.822	-0.302	-4.244 .000
	DBT	7	-0.697	0.228	0.052	-1.143	-0.250	-3.057 .002
Therapy mode	Group	5	-0.263	0.186	0.035	-0.628	0.102	-1.410 .159
	Individual	11	-0.576	0.155	0.024	-0.881	-0.271	-3.704 .000
	Individual plus family	2	-0.212	0.325	0.106	-0.849	0.425	-0.652 .514
	Individual plus group	6	-0.790	0.228	0.052	-1.237	-0.343	-3.466 .001
	Telephone plus group	1	-2.585	0.561	0.314	-3.684	-1.486	-4.610 .000

CBT & DBT
showed
significant
effects

Note: The fully random effects model was used for all analyses. CBT = cognitive-behavioral therapy; DBT = dialectic behavior therapy; TAU = treatment as usual; WLC = waiting-list control.



	Trial 1 Stage I	Trial 2 Stage I	Trial 3 Stage II	Trial 4 Stage II
Total Participants	N = 24	N = 50	N = 218	N = 189
Recruited to Date	21	18	0	49
Funding Source	National Alliance for Research on Schizophrenia & Depression	Congressionally Directed Medical Research Program	United States Department of Defense	United States Department of Defense
Amount	\$60,000	\$457,609	\$6,000,000	\$2,893,708
Inclusion Criteria	Inpatients Suicide Attempt	Inpatients Suicide Attempt AND Trauma	Inpatients Suicide Attempt Past OR Current	Inpatients Suicide Attempt OR Suicide Ideation
Intervention	Post Admission Cognitive Therapy (PACT) Treatment Considerations = Trauma; Traumatic Brain Injury (TBI); Single versus Multiple Attempt			Safety Planning
Sites	Walter Reed National Military Medical Center To Be Added: Ft. Belvoir Community Hospital			

Post Admission Cognitive Therapy (PACT)

Inpatient Cognitive and Behavioral Treatment for the Prevention of Suicide

Cognitive and Behavioral Practice, 2012

Cognitive Therapy for Prevention of Suicide

SUICIDE-RELATED BEHAVIORS

Problematic Coping

Primary Problem
Rather than
Symptom of a
Disorder

Patient's Story

On Decision to Attempt Suicide

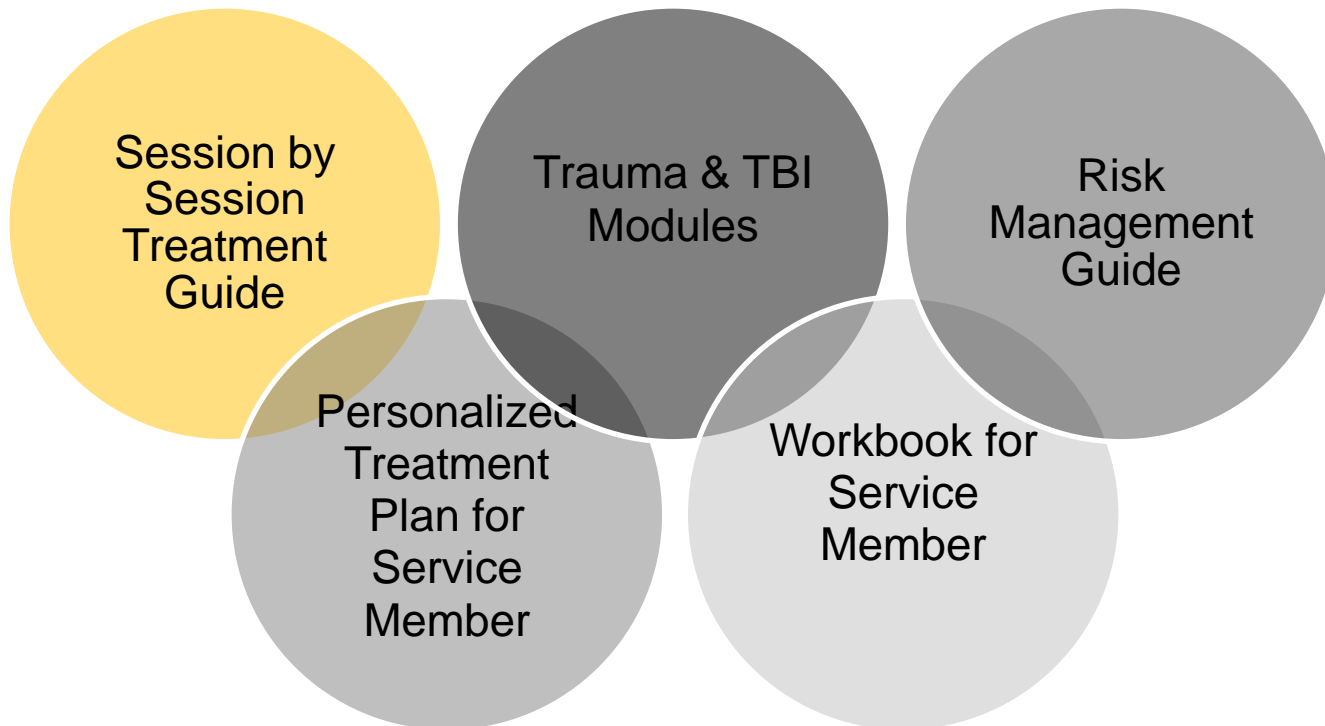
I took all the narcotics out that I could find...I laid them all on the bed and I sat there for a couple of minutes and I was thinking, like, it was like a part of me saying, “you don’t want to do this.” And there was a part of me saying, “Do it. Just do it. Do it.” And a part of me saying “oh/no”. And it was 3:36 and I was looking at the clock and was just thinking about it – back and forth, back and forth. And 3:40...I was just to do it. And I just grabbed them all and took ’em. And I laid there in bed. I started crying and I don’t know why I picked up the phone and I called my brother. I didn’t tell him what I did or what was going on, I just called him. And we talked for maybe about a minute or two and hung up the phone. Just waiting. Waiting for the effects to take - for whatever was supposed to happen.

PACT

6 Individual Therapy Sessions – 90 Min Each Sessions Transcribed

Treatment Phase	Therapeutic Goals
Phase I Sessions 1 and 2	<ul style="list-style-type: none"><input type="checkbox"/> Build Therapeutic Alliance<input type="checkbox"/> Provide Psychoeducation<input type="checkbox"/> Collaboratively Plan for Safety<input type="checkbox"/> Develop Suicide Mode Conceptualization<input type="checkbox"/> Assess Readiness for Change
Phase II Sessions 3 and 4	<ul style="list-style-type: none"><input type="checkbox"/> Instill Hope – Increase Reasons for Living<input type="checkbox"/> Teach Adaptive Coping Strategies<input type="checkbox"/> Target Deficits in Problem Solving<input type="checkbox"/> Address Social Support Concerns<input type="checkbox"/> Practice Emotion Regulation Skills
Phase III Sessions 5 and 6	<ul style="list-style-type: none"><input type="checkbox"/> Promote Linkage to Outpatient Aftercare<input type="checkbox"/> Teach Relapse Prevention Strategies<input type="checkbox"/> Refine Safety Plan before Discharge

Study Deliverables



Summary

Psychiatric hospitalizations provide us with a **unique opportunity to provide much needed care** for military personnel.

We need to develop **evidence-informed interventions** for military personnel admitted for inpatient care.

We need to develop these interventions **as soon as possible** to address the unique needs of this highly vulnerable group.



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University of Rochester; Walter Reed National Military Medical
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Questions?